THE LIZARD GENUS *PHENACOSAURUS*.

EMMETT REID DUNN

Examination of 64 specimens of this endemic Colombian genus in the collections of the Instituto de Ciencias Naturales, the Instituto de La Salle in Bogotá, and the Colegio San José in Medellin indicates that the genus is not monotypic but is composed of at least three species. The genus *Phenacosaurus* was described by Barbour in 1920 (Proc. New England Zool. Club, 7, pp. 61-63) with *Anolis heterodermus* Duméril as the monotype. The genus is close to *Anolis*, being distinguished by having a prehensile tail, a dorsal crest of enlarged scales, heterogeneous dorsal scalation of larger and smaller scales intermixed, and by having more or less of a casque, the hind end of the head being elevated and projecting backward somewhat over the body. *Anolis jacare*, of Norte de Santander and adjacent Venezuela, may be close to the parent stock of *Phenacosaurus*.

Both sexes have a well developed throat fan; the males have a pair of enlarged post anal scales; the female lays a single egg, which is said to take a year to hatch in the climate of Bogotá.

The species live at high altitudes (1800 to 3500 meters) in the Eastern Andes. Possibly one of them also occurs at similar elevations in the Central Andes.

Key to *Phenacosaurus*.

A. Dorsal crest of a single row of scales, best developed on the nape.
  B. Dorsal scalation without granules, some scales larger than others but not more than twice as large; Norte de Santander .... **nicefori**
  BB. Dorsal scalation of large flat scales completely separated from each other by smaller scales, granules, and even naked skin; Cundinamarca and Caldas (and possibly Antioquia) .... **richteri**
AA. Dorsal crest of two rows of pointed scales; dorsal scalation of flat scales touching each other, but with smaller scales in the interstices; Cundinamarca and Boyacá .... **heterodermus**

Phenacosaurus heterodermus (Duméril).

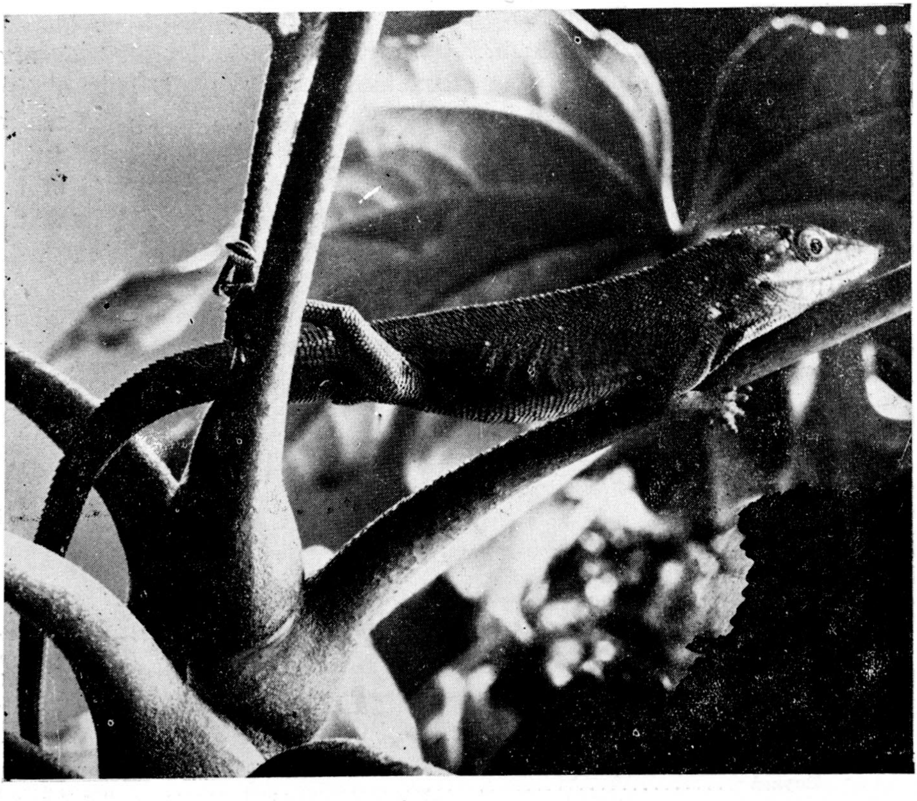
Anolis heterodermus Duméril, 1851, Cat. Méth. Coll. Rept., pl. 59.

TYPES: "Numerous examples" in the Paris Museum.

TYPE LOCALITY: New Granada = Colombia.

RANGE: Known from the vicinity of Bogotá north to Soatá in Boyacá; from just above Bogotá (2700 m.) to at least 3500 meters. Zone of Páramos.

DESCRIPTON: "cranial plateau bordered in its whole periphery, including the muzzle, by big swollen scales"; a postocular ridge of big swollen scales; row of large scales parallelling lower labials, in contact with them for 6-8 scales (in contact to back of eye); "a longitudinal line of big scales, regularly arranged" from angle of jaw to shoulder, above ear which is much smaller than these scales; dorsal



Phenacosaurus heterodermus (Duméril)

(Foto L. Richter)

crest a double row of pointed scales, equally developed from head to tail and continuous; dorsal scales "irregularly polygonal, flat, smooth, intermixed with much smaller and granular scales", the smaller scales or granules occupying the spots where the large scales are not in contact with each other, i. e., the large scales almost invariably are in contact one with another; the longest finger reaches to beyond the eye or to the snout, the longest toe reaches the axilla; lamellae under fourth finger 22, under fourth toe 28-30; color uniform except for white on swollen scales of head, and along lip and line of big scales to shoulder; total length to 162 mm., tail 92.

REMARKS: I am indebted to my friend L. C. Stuart for a copy of the original description of *heterodermus,* from which the quotations in the above are taken, and which has enabled me to determine which of the three is true *heterodermus.*

MATERIAL: One from Soatá; 17 from above Bogotá.

Phenacosaurus nicefori, sp. nov.

TYPE: Largest male in the Instituto de La Salle series, collected by Hmno. Nicéforo María.

TYPE LOCALITY: Vicinity of Pamplona, Norte de Santander (2340 m.).

DESCRIPTION: The area around the back of the head is somewhat swollen but the scales themselves are not, although they are notably enlarged; the contact between the lower labials and the row of large scales parallelling them is very variable, 2-10 of the latter may contact the former. There is no row of enlarged scales from the angle of the jaw to the shoulder over the ear, and the ear is much larger than the scales above it; the dorsal crest is of single scales, best developed on the nape (where there may be occasional paired scales) and quite discontinuous on the body; the dorsal scalation is uneven, but there are no very large or very small scales, the largest are only about twice the diameter of the smallest; the longest finger reaches only to the eye, and the longest toe does not reach the axilla; lamellae under fourth finger 16, under fourth toe 25; color rather uniform, though traces of a light line along the upper lip and neck may be made out, and there may be a vague mottling of light and dark on the body; length 145 mm., tail 82.

REMARKS: This is the most Anolis-like of the species, and would seem to be primitive in most respects, except for the very short limbs.

MATERIAL: Eleven specimens from Pamplona.

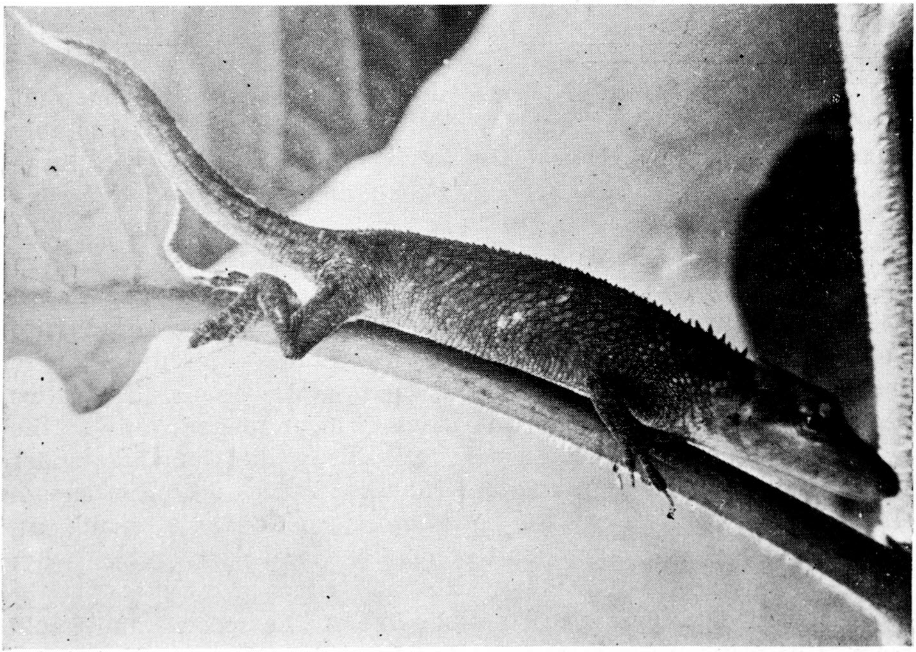
Phenacosaurus richteri, sp. nov.

TYPE: Adult male in the Instituto de Ciencias Naturales.

TYPE LOCALITY: Tabio (2645 m.), Cundinamarca.

RANGE: From above Fusagasugá (1746 m.) to above Bogotá (above "El Delirio" at about 3100 m.) in Cundinamarca; specimens from Antioquia and Caldas seem to be this species.

DESCRIPTION: The circumoccipital region and a postocular ridge are swollen, but the scales over these are not, nor are they enlarged (except somewhat in large adult males); there is no row of enlarged scales from the angle of the jaw to the shoulder above the ear, and the ear is as large or larger than any of the scales immediately above it; the row of large scales parallelling the lower labials is in contact with them for 4-5 scales, the contact breaking at the eye; the dorsal crest is best developed on the nape, where it is a single row of acute spines, but further back it is lower and frequently interrupted; the dorsal scales are very heterogeneous, the largest completely out of contact with each other, separated by smaller scales and by granules;



Phenacosaurus richteri Dunn

(Foto L. Richter)

the longest finger reaches a little beyond the eye or the snout, the longest toe reaches the axilla or beyond.

The color is difficult to describe, as it varies from time to time. There is always a light streak from lip over ear to arm; the tail always shows some signs of barring, and there is usually a patch of light blue at the base; there is almost always some bronze and frequently some blue on the top of the head; the eyelids are always blueish and sometimes a bright blue. The body color of many specimens observed alive was rather uniform but changed from emerald green to greenish gray and to a rather rich brown. The largest adult male from Tabio remained without color change during days of observation, but the large flat scales were light and the rest of the body dark. In some specimens in the green phase the large scales were much the brightest green. The largest adult female from Tabio had the body bright green for days, and then there appeared two wide black cross bars. A small male from Arracachal, near the new electric plant, had the body dark with three narrow light cross bars. The belly is always lighter, either pale green or a rich cream. The throat fan is pale orange. The largest specimen, a male from San Pedro, measured 210 mm., tail 125; the largest Tabio male was 195, tail 115; the largest Tabio female was 175, tail 98; the two smallest, both from Tabio, were a female (navel showing) of 80 mm., tail 49, and a male 100 mm., tail 78.

REMARKS: Dealing at first with preserved specimens, and with Cundinamarca specimens which all showed barring on the body and Antioquia specimens which all showed big scales light on a dark background, I thought that two forms might be distinguished. Having seen the color variability and color change in the Tabio and Arracachal specimens I am now unwilling to do so. Possibly the San Pedro specimens have slightly longer limbs and more lamellae under the fourth finger (the alternate statements of longer limbs and the high fourth finger lamellae count refer to them), but the difference is very slight and perhaps imaginary. Indeed the label may be erroneous.

This species seems to occur with or overlap *heterodermus* as both were taken on *Espeletia* above El Delirio by L. Richter, but in general it seems to occupy lower levels. The Tabio specimens were mostly on blackberry (*Rubus*) bushes. Of the three Arracachal specimens, one was walking across a path, one was on a wire cable about six feet from the ground, and one was on a small terminal branch of a tree, about four feet from the ground. They sidle sideways quite rapidily, putting the branch along which they lie between them and the observer, and they can jump quite well, but they move forward very slowly and apparently cannot run at all fast. Thus they are quite chameleon-like in actions as well as in appearance. I saw one protrude the tongue at least half an inch to catch a fly.

I name this species for my friend Dr. Leopold Richter, whose El Delirio specimen was the first I saw, and whose photographs of this specimen and of a *heterodermus* from the same area illustrate this paper. Both specimens were taken on *Espeletia.*

MATERIAL: Above El Delirio (3100-3200 m) 1; "Bogotá" 10; "Fusagasugá" 4; Tabio (2645 m.) 12; Cogua (2665 m.) 1; Arracachal (2000 m.) 3; San Pedro, Antioquia (2560 m.) 4; Laguneta, Caldas (2500 m.) 1.

Material sent to the American Museum of Natural History by Hmno. Nicéforo was reported on by Burt in 1931 (Bull. Amer. Mus. Nat. Hist. 41, p. 480). They had 15 specimens of *Phenacosaurus*: 7 from Bogotá, 2 from Gutierrez (2350 m. in Cundinamarca), 1 from "Mts, near Muzo" (Boyacá, 820 m.), 1 from Medellín (Antioquia, 1538 m.), 4 from Sonsón (Antioquia, 2410 m.). The two additional Antioquia records may help to confirm the existence of *Phenacosaurus* in the Central Andes. They speak of "highly variable" coloration, which would indicate that they had some specimens of *richteri.* Of two from Bogotá returned by them to the Instituto de La Salle, with American Museum tags, one, AMNH 24206 is *richteri,* and the other, AMNH 24207 is *heterodermus.* Thus they had at least two species in their material, and until it can be re-examined in New York it is futile to speculate further.

It was a great pleasure to me to see specimens of this endemic Colombian genus alive, and I wish to thank Dr. Armando Dugand and Señor and Señora Jaime Samper, who made this possible for me.